

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 December 2003 (04.12.2003)

PCT

(10) International Publication Number
WO 2003/100035 A3

(51) International Patent Classification⁷: **C12Q 1/68**,
C12P 19/34, C07H 21/02, G01N 33/00

(21) International Application Number:
PCT/US2003/009802

(22) International Filing Date: 31 March 2003 (31.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/369,405 1 April 2002 (01.04.2002) US

(71) Applicant (for all designated States except US): **ISIS
PHARMACEUTICALS, INC.** [US/US]; 2292 Faraday
Avenue, Carlsbad, CA 92008 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ECKER, David, J.**
[US/US]; 1041 Saxony Road, Encinitas, CA 92024 (US).
GRIFFEY, Richard, H. [US/US]; 360 Barsby Street,
Visita, CA 92084 (US). **SAMPATH, Rangarajan** [IN/US];
12223 Mannix Road, San Diego, CA 92129 (US). **HOF-
STADLER, Steven, A.** [US/US]; 5014 Viewridge Way,
Oceanside, CA 92056 (US). **MCNEIL, John** [US/US];
427 Retanheim Way, LaJolla, CA 92037 (US).

(74) Agent: **LEGAARD, Paul, K.**; Cozen O'Connor, 1900
Market Street, Philadelphia, PA 19103 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SI, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BI, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
23 September 2004

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **METHOD FOR RAPID DETECTION AND IDENTIFICATION OF VIRAL BIOAGENTS**

(57) Abstract: Method for detecting and identifying unknown bioagents, including bacteria, viruses and the like, by a combination of nucleic acid amplification and molecular weight determination using primers which hybridize to conserved sequence regions of nucleic acids derived from a bioagent and which bracket variable sequence regions that uniquely identify the bioagent. The result is a base composition signature (BCS) which is then matched against a database of base composition signatures, by which the bioagent is identified.

WO 2003/100035 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09802

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/68; C12P 19/34; C07H 21/02; G01N 33/00
 US CL : 435/6, 91.1, 91.2; 536/23.1; 436/94

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1, 91.2; 536/23.1; 436/94

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 6,258,538 B1 (KOSTER et al) 10 July 2001 (10.07.2001), column 21, line 28 to column 23, line 67.	1-16, 22, 23 ----- 17-21
X ---	JURINKE et al. Detection of hepatitis B virus DNA in serum samples via nested PCR and MALDI-TOF mass spectrometry. Genetic Analysis: Biomolecular Engineering. 1996, Vol. 13, pages 67-71, see entire document.	1-4, 6, 7, 10-16, 22-24 ----- 5, 8, 9, 17-21
Y	AMEXIS et al. Quantitative mutant analysis of viral quasispecies by chip-based matrix assisted laser desorption ionization time-of-flight mass spectrometry. Proc. Natl. Acad. Sci. 09 October 2001, Vol. 98, No. 21, pages 12097-12102, see entire document	1-24
Y	US 6,268,131 B1 (KANG et al) 31 July 2001 (31.07.2001), see column 3, lines 10-22.	17-21



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"A"

document member of the same patent family

Date of the actual completion of the international search

20 July 2004 (20.07.2004)

Date of mailing of the international search report

03 AUG 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450

Facsimile No. (703) 872-9306

Authorized officer

Jeffrey Fredman *J. Roberts for*
 Telephone No. (571) 272-1600

INTERNATIONAL SEARCH REPORT

PCT/US03/09802

Continuation of B. FIELDS SEARCHED Item 3:

EAST, MEDLINE, BIOSIS, CAPLUS

search terms: MALDI, TOF, Mass, Spectrometry, virus, viral, HBV, HIV, HCV, PCR, polymerase, chain, reaction